

Amendments to the Specification:

Please replace the paragraphs starting at page 10, line 4 and ending on page 10, line 30, with the following amended paragraphs:

Referring now to Figure 6, it will be appreciated that nodes 13 may be produced by introducing diverting inserts in the form of sections [[44]] thereby to divert a portion of the reinforcement around the corner created by said section so that the lengths of reinforcement pass from one frame part 12 to another continuously through the node 13.

Figure 7 illustrates in a very simplified form a machine suitable for laying reinforcement onto the mould structure. The machine 60 comprises a support frame 62 having a reinforcement supply head 64, to be described in more detail later, mounted onto a two-axis positioning head 66. The head 66 is mounted on and translatable - arrow X - along bridging member 68 which is, itself, translatable - arrow Y - along frame 62 so as to move in two dimensions. An ovoid mould structure formed of segments 24 is mounted for rotation about a longitudinal axis 63 of the frame 62 such that, on controlled translation of the feed head 64 and rotation of the mould structure it is possible to deposit the reinforcement into the channel 26 of the mould by laying it on and along that channel. This Figure also illustrates the crossover or inter meshing relationship at nodes 13 of the frame thereby to increase the rigidity of the finished frame. A programmable CNC [[70]] is provided to control the movement of the support frame 62 and feed head 64.

Please replace the paragraph starting at page 11, line 8 and ending on page 11, line 18, with the following amended paragraph:

Figure 8 shows a second such machine 60', with a feeder head 64 to which reinforcement comes from a roll 65 carried with the head (in other embodiments, however, the roll may be immobile or independently movable). As before, the head 64 can execute longitudinal or lateral movements over a mould structure, here generally [[67]] mounted for rotation on axis 63. Under the control of a CNC [[70]], reinforcement can be laid down either continuously or in discrete lengths along the grooves or the mould structure until these are full or slightly overfull.

Please replace the paragraphs starting at page 11, line 27 and ending on page 13, line 11, with the following amended paragraphs:

Figures 9 and 10 shows the feeder head 64. Reinforcement 38 from the roll 65 or other source is taken by driven feed rollers 45 at a required rate through nozzle 46 with guide wings 47. Reinforcement issuing from the nozzle is pressed into the base of channel 26, or on to a preceding layer of reinforcement, by pressure roller [[28]] 48. Cutter 49, which like feed rollers 45 is under CNC control, can operate to sever discrete lengths of reinforcements.

The reinforcement 38 comprises carbon fibre filament 50 surrounding a central core 52 which, in a preferred arrangement, comprises a compressible core such as a foam material. As described later, in respect of Figures 19-23, the reinforcement in a particularly preferred

arrangement has an expansible closed cell foam core. It will, however, be appreciated that flexible or non-compressible cores may be used to advantage. Powdered fusible binder is carried on or in the carbon fibre cover 50. A pulsed infrared heater 53 fuses binder on the surface of any preceding layer of reinforcement to tack the newly applied layer in place under closure of the mould and impregnation, as will be described with reference to Figures 11-18. Whilst the majority of the reinforcement is wound continuously it will be appreciated that this winding process may be stopped and then recommenced at any position of the mould structure such that localised areas may be provided with additional composite material in order to improve the strength of that portion. In addition to the deposition of discrete lengths of reinforcement it is possible to incorporate additional fabric, foam and metal inserts into the wound structure as the reinforcement is supplied thereto (such inserts can also, however, be added when winding is complete). Such additions serve to enable the structure to withstand large or localised loads during use and/or provide mounting points for components which must be mounted to the basic mould structure. As showed in Figures 11-18, the mould structure is filled with the feedstock from feeder head 64 (here shown as delivering a plurality of reinforcements at one pass) whilst at the same time introducing any additional inserts (~~shown generally at 46~~) and the mould is then overfilled by a small amount (Figure 14) so that when the mould is closed by second mould part 40' (Figures 15 and 16) the reinforcement is compressed. Resin is then fed

Serial No. 10/069,101

Intl. Appln. No. PCT/GB00/03279

Docket No. SGU-0050

Reply to Office Action of December 18, 2004

in, preferably by vacuum impregnation (Figure 17), to impregnate the voids, and is cured. The mould parts 24, 40' are removed leaving the formed frame member 12.